Notebook, PN-10-04-13

This pocket notebook contains one dated entry from April 1910. It was probably used by Edison at his winter home in Fort Myers, Florida, as well as at the laboratory in West Orange. The book contains notes regarding experimental work and other tasks to be performed. Among the experiments are many chemical researches relative to Edison's alkaline storage battery and to phonograph record blanks. Other experiments pertain to motion pictures, color photography, business phonographs, and phonograph reproducers. An entry marked "Big Scheme" proposes using heat from the Edison Portland Cement Co. kilns to generate electricity. The employees mentioned in relation to individual experiments include Ralph Arbogast, Walter N. Archer, Eben G. Dodge, Pursell Eggleston, Ignacy Goldstein, Thomas D. Greenley, and Walter E. Holland. The notebook also contains many notations and reminders about patents, production costs, marketing, and other business matters. Included are notes pertaining to recording artists Leo Slezak, Arturo Nutini, and Harry Lauder, and a reminder to send storage battery data and a catalog to "Jack" Morgan at J. P. Morgan & Co. Near the end of the book are tabulated costs for battery and cement production, statistics on the production of chemicals, and a financial profile of the Edison Portland Cement Co. as of October 1909. One entry giving the address of a chemical plant is in an unidentified hand. The pages are unnumbered. Approximately 80 pages have been used.

PN-10-04-13

Checked Nov 99
Phil Murry

1503 72

1655 | 446 (2.7
3 3 0
1 1 6 0
1 1 5 5

180
27
2 6 0
1 6 0
3 6 0
3 6 0

2.7 | 1800 (66
1 6 2 0
1 8

115 | 446 (4
4 | 1 8 0
4 5

See if Sleeping acetate compl actually separates Rubber in 2 parts —

Phenol boiled with H_2O_2 gives normal Letts Napthalene reaction —

Phosphorous Anhydride / action Phostriable on Aniline colour, acetic acid MP 57 mod H_2O neither acid or base not affected by acids or alkalies —
1885 p 254-5 Chem Soc Jol —

Oxidizing Olefins by KMnO4 MP 122 C

See if Barbitric Ins in Cupriol Ret Sol —

See about Treatment of Rubber at Bolling
See Roche about Bromides for test by Goldstein

Goldstein 6 oz Sulphate Mg Fe —
80 Fe 20 mg Oxalate — 70 + 30 60 + 40 —
also Nitrate to get very strong to make a Weldonch Fe for Chlorine oxidation in bolling KCl Reduce —

Holland about test cells again grown
for 90 80 70 60 50 grains
KOH enhancement

5 grms Cobs reduced twice – Cannot then
replace chgs remove chgs 300 atmospheres
wet, little chgs [illegible] hundred atmospheres
free KOH & dried then [illegible]

1400 – June 27 – [illegible]
1362 – [illegible] 14
1423 – June 27
1449 – June 27
1595 – [illegible] 14
1493

Walker Arches Reg Fe 5 grm dump 8 flake
Every 1/2 of iron

Holland Recovery of 2 of the Hg 1/0 [illegible]

Found 2 5 grms Fe. Press & soaken
21 K dry & heat to 300 Fahr –

Holland Goldstein determination of H2O2
or H2O2 or ozone present in chgs
Cell in KOH.

Holland see of Pb1 (good) cell as
affected amount by Cell as Reg cell
Chg a test cell at Reg temp then heat to 130
& then put back at normal temp – [illegible]

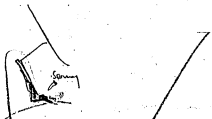
3 Likes 1/2 grms sulphur of Pb1 top swab
Like before [illegible] in put in the Cap –
Dep 1/4 grm –

Holland Start chg cell with test H2O2
in electrolyte –

Explosion – lay out Reg [illegible] & Commercial
yellow both on chalk, spray [illegible] output point of
spray. All so weight [illegible] to dim. [illegible]
free [illegible] – [illegible]

Explosive –
Collapse sapphire in high opacity
Repeat [illegible] at 40 [illegible] Reason
[illegible] 35 – See Eng about this
others [illegible] [illegible]
They are 40 instead of 35
Get some with [illegible] small
Fe [illegible] [illegible] –

Gravity perhaps [illegible] [illegible]
[illegible] will dry under heat
glycerin [illegible] gly will
absorb the [illegible] & heat
[illegible] top with [illegible] at



Joel Pettill rd not fit to working one complete outfit or unit - so not enquire if being made —

Dyer send to Prof for samples of the things $5 @ 7 & 10 dollars [illegible] 2 kinds of the best of French [illegible] known made to Ahrofit to best & for horse & person with chromatic [illegible]

Bismuth Thickness phate very sol H_2O precip by K salt. All the other actuals except French nickels does it test for K - $Bi_2(SO_4)_3$ 55% Bi very sol water dissolves in alk ammonium or acetate

Ask Dyer of Hyam Rutz to phone [illegible] abroad —

Water - demand cost of record delivered Albany including [illegible] general [illegible] — per 1000 —

Slezak as ok best some of the acids showed gave best of all big surgery

See if Phenoso could precip the Cu from Ephemeridi blue dissolved - get some Mg from battery [illegible] - think I go down as Cu_2O

Chl Zn - condensing dept for Oils & fats —

Try possibly not working at [illegible] by Vanadium Salts in or out of KOH + by Current

Thickness Coils

Try ordinary [illegible] Potash [illegible] of
[illegible]
make less [illegible] [illegible]
[illegible] make [illegible]
Sulphides are [illegible] Potash

Webbs at [illegible] [illegible] dust,
bag mills special 6 months [illegible]
[illegible] for [illegible]
Dyers about Tests [illegible] report,

Durand, 1/4 [illegible] phone only

Look at [illegible] Model
Record [illegible] point —

Send up 8/1000 Rosin and clearance
when got Florida

Try the 4C stuff with wood fibers

ask [illegible] if he sent the Tests
Results — Have Petit make
some from [illegible] moulds

Petit try Tetrafluoride

9 [illegible] 5 [illegible] Resinate
Aluminum [illegible] samples 9

Have — acid salt or Neutral Sulph
make test [illegible] first.

Mix gasolene and Resinate Lead yellow and Sulphide Na and from
[illegible] Tetrachloride PbSO4 + Ron Na — [illegible] Sulfate Calcium
+ Resinate Lead — try Oleates [illegible] Lead — Smith
[illegible] the outline principle of dry soaks drying
when heated accurate [illegible]

Try the Resinate [illegible] acc + [illegible] [illegible] will [illegible]
Resinate [illegible] soluble in organic solvents

If [illegible] get hot dry dry test + work out cause
[illegible] capacity dry hot + vice versa

Pie [illegible] + use the brush in [illegible] to trick
Hog [illegible] also 2 Sulphur — [illegible]

Drag [illegible] to drag on [illegible]

Precipitate Old Soap by [illegible] wash + Dry
Hot Rosin Esters —

Dit Epichlorohydrin [illegible]
Kauri + Copal fine —

Rosolic acid is a Condensation
product of Salicyl Aldehyde on
Phenol — acc of Rosolic a [illegible]

Greenley / Goldstein works

Pyrotartrimide dissolves oxide lead
filter paper attached remove it
gelatinous precipitate —

Schofel — Put up Egg Shelen Room
for 2 workmen — Motor & tools —
phones etc — clean out the partition
Also Gum put another man
Motor & Pump in Washing
Room —
Fall funnel manure etc to be
under scrapers

2 tubes powdered Bright emerald
powdered & mixed with green
4 48 — one 48 300 mixed each
tube —

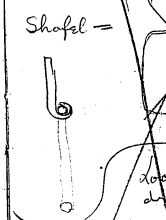
2 tubes dissolve green three flakes
there — 3 mixed K_2CO_3 iron lamp

2 tubes 48 green 4 f — green
has 20% K_2CO_3 mixed —

Dr. Louis Schaefer
Schaefer Alkaloid
Works
Maywood, N.J.

Harry get Coal Lift,

Shofel —



Look at V other worm
drive —

Dyer fall manure — clean lighting
room — golds all [illegible] etc.

Send to [illegible] Morgan [illegible]
& Billy Clifford [illegible]
also Cornish

Tell Dyer [illegible] Hanny Lender

Tell Dyer the trouble is [illegible]
& Dodge is stuck up him + you
will have trouble [illegible]
[illegible] he will
Either be confusted or crooked

Dyer Car lighting [illegible] no possibly
All batting lighting with [illegible] but
large cut is possible with much
bat —

Mutiesque [illegible] with
fibre are Sunday bowl
Proper in [illegible] first —
By my Gospelson [illegible] —

Show Smith + [illegible] Hyatt
air cylinder [illegible]

group — 33 alone
changed to 21 K 2 Li
group 33 [illegible]
changed to 21 K 2 Li
group 33 & 2 Li once
changed 21 K 2 Li
group 33 & 2 Li twice
changed to 21 K 2 Li
24 walk + 854 +
Drop 48 walk 1164
group 33 2 Li 3 Rly
once changed 21 K 2 Li
Little Tunnie —
24 0 + 48 walk

Speaker Dyer also arrangement
with groundsman pay $2. not
keep out of the [illegible]
[illegible]

Ask Hallam if he may sell tank cars to
½ V allowance the Expts in Cost for
comparison —

Chemicals to try all the chemicals
with Cane sugar
ditto Wood pulp
ditto Glycerine
ditto Rayon
ditto Rosin
ditto Phenol,
ditto Aniline
ditto Soft Cubron asphalt
Ditto Office chem —
Ditto Montana —

Dyer about finishing Dodge
for 500 dollars — tell him
about the 20 loader
washing & also about the
45 dump — RR
Lighting Comm
only — but will add
Eastern

We are prepared to sell Hallam. To
installation already made —
or Hoo

Boca Grande Sour Cement
Amer Agricultural Chem Co —

Write Rd that his room should
be refined at as low temperature
as will do the business to keep
it active, he showed long
some fab Expts also not quite to
model.

Work up the wrong Dr
Bakelite for Battery room
Rubber wire Rooms
test in small tank
cells place Ribbons

Rotating disk Calling off
on Dalton for photos
Sell how which cut out
persistence of perceptions

40% Bi mixed with Barium & Reduced by
Current ought to when charged
give BaO_2 & work as a problem
also other non conducting precipitation

Bismuth grease get one
on by Vul colour pitt
liquid Bi in —
With & without centrifuge.

Soak grease twice in
Most Conc Bi Sul pulling
in Rott soda lye & e
drying — also
Write Goldschm prep
10 15 20 25 30%
Bi with Hi
also Bi 15% grease
make by Gilman
Soak in Conc Bi Sul
get another dose in

perforate some alags &
grind so burrs get holes
same size as now &
then make plunger head
larger so same clearance
as with burrs & run a
number of curves

Try some Manganese Nickel
Try Cr Ur Mo as Chloride
same as Bi in grease

Write Goldschm Heat H_2SO_4
with different on acids
according to the percent

Phosphotungstic acid
Combine with mercury Ammonia
Substituents, albumen Goldschm
try lect

X42 new chem section Moreau's Reduced
M- Or Phal book with chem to be
acid on + Impurities X ray or Ultra
Violet light —

Make 6 leaves each
of Most Cons Bi
Manganeselaboo in various
ways as to time in Sol
Vad soak, time in ROH
Etc —
Think Cons Lingo leaves Bi Cf Mn/Ni
+ thus get very Cons Sol,
also Centrifuge,

Dodge about plating
leads on Can sheets —

Meadowcroft - Multipolar
Dynamo book

Water Connections ½ & ¾
together, both packed + from Indiana

Bottom

Turned other
way in Bolting

Top in packing

perforated tube like this

Knit tube flattened wire
00 Reg Knitting needles

Dyes: Ought to file for applicn
and Diamond recommendation to.
present trouble — write out
process using ~~explicit~~ ~~to~~ ~~be~~ ~~as~~ ~~to~~ ~~be~~ ~~as~~

Holland 2 Cells
charged several times
filled water repd
+ set away to sold
deposits

perhaps a Bi Cell will not hold its charge — Tell Holland that it —

Li_2CO_3 on hand 7/26/4 5 1800 CG

Signor Nutini Pianist — 245 Summer Avenue near 3rd Ave. Newark N.J.

Goldfield Dictorial Nevada Bismuth veins in January, Combination of Sandstorm mines —

Metals Glycols + Metals Fe heated together to 600 C gives loose bibbed compound 2 Sr O FeO_2 The Fe_2O_3 acting as an acid radical

perhaps Can use this in battery. Imalcad Nickel — Try Ba Ca — Think heavy will make most peculiar the 2 Salts in Hypo-permanganate KOH etc

Patent Right on Gold hand Operated assembling of Tubes —

Nickel plating Com — gum dust stuff well + slum) KOH + working for Factory matted Rubber)

Patent Bi attached to P Electrodes — dilute BiOH in Cell

Make some Tungsten Powder that Conduct Prec of work in Tube,

Cheap Chemo to put in Chalk to heal for better Climates NaCl. $CaSO_4$ Felspar Na_2CO_3 Nat Carbon Na Si Iron ore Nitrate — Mix over Fluorspar, Cryolite $CaCl$ Na Sulphate Florida Rock Phosphate, Coal to reduce Ferric —

Goldstein to make some NaOH. + dry Potash + Lump that it will all go black

Ferrates or ferrate of Earthy alkalies may lead to sal in KOH o-cond by raised up to FeO_2 by Elec oxidation for use as P electrode –

Ferrate of Barium $BaO\ FeO_3$ bulky cochineal or purple red precipitate becomes brown red after drying at 100 C.

Goldstein make a cathode tray

Goldstein make 100 grams Roussins Salt

Nitroprusside of Iron

$Fe_2 C_6 S_5 (NO)_10 H_2O$

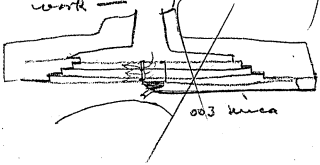
or $FeNO_2 NH_2S$ –

When got to Orange Lajoie bag from Rand drill hole assay for Bi see depth it was found at & if cobalt halos in soft material if so could dig & also bore 2 or 3 more holes to same depth to see if much of a deposit – Look up the Bi. Sellers & go into the matter of a supply for 500 lbs daily

Write Grundy to try dissolving the NaCl halos with liquid CS_2 containing varying amounts of dissolved S.

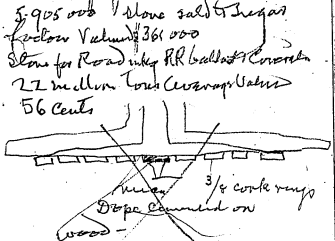
Ask Mallory to have Mora figure out what 500 m lbs cost & above 1/5

Ask Holland how they match
bullers - hope they don't
mix Lowcarp with high Cap -
Holland to send Cleaners to,
Benjamin + Cullen yellowbum
to Comparative Cement Latest 2184
A4 + Sayers E18 goes in
periodics. 2 yrs in heavy work
or 600 chgs + dis + 1200
in lighter work -
report that if there is anything
in Comparison A4 showed
least several years in heavy
work —



Caustic Lime bldg 1,580,711 Hydrated 136 000
alkali works 46 000 chemical works
73000 — paper mills 169 000
sugar factors 24 000 Tannerm 22 000
Fertilizers 339 000 Dealers 307 000

Cements for flux 11 million tons Value
5,905 000 Alone sold to Sugar
factors Value 361 000
Stone for Road ballast RR ballast + Concrete
22 million tons Cement Value
56 Cents



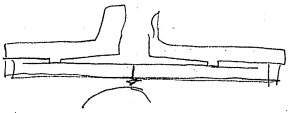
Holland to chg 130 chgs +
Reserve 72 sold -
Charges 2 of product
equipment - Condition 3 times
outlet 6 times without
Lion -

~~Gal. Salem offered me best of his other, now I know made after 100.~~

~~Diamonds found in 70~~
~~Van Moppes 68 Nassau St~~
~~Write Dyer Steel cor hands~~
~~10 000 points.~~

~~Archer of Coughsaw~~
~~any more 10.8 - Bot~~
~~Graphite put in carbo~~
~~Coalbond flake, 24 deg~~

~~To prevent foaming in~~
~~RDH. boil with Bi OH~~
~~which will be destroyed by~~
~~Organic acid if it is by~~
~~pulling organic in~~

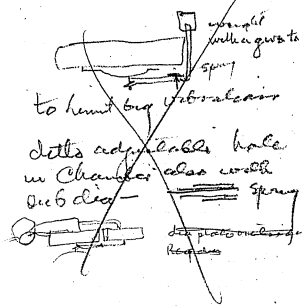


Larger dia than trim dia.

Oxidize organic matter in KOH
with Sodium hypochlorite boiling —
collect + pour off acc. of Grams
by Bioth also — also N_2O_3 OH)

~~Write B Bar to Hall Italian~~
~~Navy to renew Elec~~
~~every 250 also that~~
~~from phone have full long~~
~~change. 250 Rem~~
~~also, that bag~~

for Regrinding in Tube mills
get product of crushing from
Sub bins or dust to present
power plant —



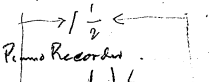
In ring dia. The knife spring should
be stiff enough so the chips can be
bowed in towards chamber, then
the tendency to jump out will
be at a minimum. This is a
new kink + especially good
with Ring dia of thick —

Make width of Doped surface
both Edges on ring 1/32 instead
1/16 to 3/32 as now —

Holland Make A 4
both same tubes ^ Mi + flake
but now in one
Changed or Reversed
12 times to change lugs and
after each Reversal
One in 21 K. other 21 K 2 L
3rd one Rem Rag

Braided tube flat wire
also perforated flat wire
braided

Elc



Bent Piano Recorder

Bowed in
To make dia less sensitive to outward movement of Knife – Rubber dropped with BS. 1/2 dia – 7/8 hole
Covered by celanese –

Note for disc – can double depth cut for making outer surface following other

Na pyrogallate prevents
Easy self decomp of peroxides
like H_2O_2 or by Catylist

Try Ring Dia of Cuf &
also balance the friction
pull by a stiff spring
so dia detectors –

see if the track of pen
in Cuf will give a
current (1-2) repeat into
another Cerement,

Chlorid Iohd 1 to 1½ hac
OK – slurry well – Lac absolutely
mod –

Ethyl Chloromethyl Xylol
at high temp dissolves Rubber
+ makes a lumpy solid on cooling
but if solution thrown on the
Rubber coagulates + appears
to be very good as ever on
Cooling. This may be useful
especially if higher MP or
BP Chloromethyl Xylol
is used – The water would
go out on decomposing + leaving
reducing dropping & then
when dry & cooled is used
+ Easily vulcanized or
Xylochle dissolved out
leaving sponge to
incorporate rubber with
also have way make
Rubber sponge –
also have way to mix
Shellac or other ingredients
with Rubber –

Common Aldehyde dissolves
Cyanamide after 24 hours
changes to Albody like
Cogal sol 210

Lincoln Chloride Crude
petrol – fully + ~~[illegible]~~ in fractions
= do Bulls

Toluene agitated with 1% Permang
yields Benzoic acid + a solid
insoluble body ~~[illegible]~~ 210
or albody –

Pure Yellowish Toluene MP 28 @ 29 C
Hard crystl.

Resins are formed by action
Phosphoric anhydride on
Aldehydes

Hollow Change + shake 6 times
~~that~~ Rep tubes using Zinc TK Li
instead now then change
soak in KOH & 2 Li Run Rep.

ditto Change dies — KOH, 2 Li
with platens & assemble
with Reversed Fe.

ditto, Use 2 plat electrolyte
& change & clean then put
in tube —

dios photo - very fine
gelatinous precipt or,
fine precip revised with
gelatine, damp &
put on record & pressed
water pressed out
as plunger pressure
then heated under press

a little to get them
removed & placed under
plates with absorbent
to dry - non water
sol things be used
also - & proper fibers
mixed - desic with glycerin
can be exposed formol
vapor - gelatine by
mixed bichromate & after
mixing exposed light —

Sal ammoniac is tough
& presses into a fine hard
disk, think of powdered
mixed with glue ⊙
gelatine coated be very
tough —

look thin collection
for tough crystal organic &
press them —

Holland Steel Lead Galley
for clay & dies at 32" 4 ft 2 lb

Shellac does absorbed & precip
by water as a binder –
Could at some time precip
the finely divided Wax Metal
There is a general recession
for disc records
Even Resin could be used
Kauri –

Hair for disc mix
Asbestos, cow hair, wool, horse, mineral wool
Cotton lint, Corte, pith corn,

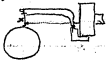
to Lightning Cut
make boundary adjustable.

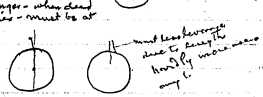
Stretch horizontal
the side swivel.

Cut away
as long as spring feel X

Write Myers & Ellen to allow
Anderson for party in Cleveland

To double amplitude
of Dia – X must be made
8 times longer – when dead
over centre – must be at
angle.





Covent new
of
V

Sulphur
008/hole

John Ott lake strips ground
of lake + roll out flatter
+ make 3 layers -

Dibromanthracen 1 part Sulphur
15 parts combine + makes sulphur
anthraphrone — There is chang
Dibro at 100 + S at 2C 8 cent 66
more exact for this compound
MP 220 Centigrade -

Guldstein prepared MPOH from
Calochylate Sol with dif %
of water in alcohol -
Try Ethyl + Methyl - glycerine
water Salicylate that dissolves
NaOH.

Guldstein - prepared 3, 1st +
Pulsate cement 5 the NaOH
2 5 7 10 + 15 % B, metal

Xylol Chloroacetate with great
amt Shellac does Till all melted
+ still like Molasses so
allowed to condense, then
cool it is very hard + nearly
as tough as Jura Hexa-wollen
fibre — think of now powdered
+ mixed with fibre it would
be as tough if not tougher
+ much more flex. bl.
it will 3 clean but not
melt + then take
impression — possibly
other things can be mixed
like powders as in make
Hexa the mat + bundle —
it powders good -

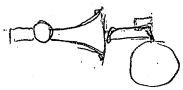
[illegible]

I found on pouring the lac in a flat dish just before it condenses that it is just as hard + can be used to make fibres with coffee powder (my it will soften bellow) then condensed stuff & powders off in the oven

~~Try Trinidad asphalt same as used for pavements, grind up with paper pulp for dyes - required bills 2c lb - 19~~ Extra cheap

~~Dyes - Boron~~ [illegible]
Any 2 amys polarised no change + nearly be hard & apparently hard

Loud tone thinking must be due to dia & ass words as when rubber is inserted best levers & dia equally good yet levers have same amplitude - try



Write Goldbeater to find a very sensitive test for - albumen - spectroscope + also Chem - Etc -

Write Benjamin Cost of Rolls & all appliances make 0035 or 005 steel Cost to produce & wages +

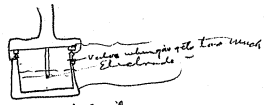
Work out 2 ft drum also condenser process
Ni flake

Mn $(OH)_2$ [illegible] and Al_2O_3
mix some with your pocket

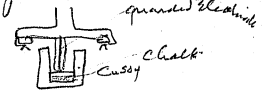
Premium Recent Prices
on Moulan — Cobalt
put in Reg bottles 2 mm

See what Dyer files put new
Reeds Ring [illegible]
Barron point —

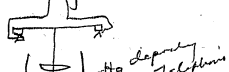
Ask Rieser try 20 mesh of [illegible] in
his tube mill then grind
till 75% thru 200 —
Clean out & put some of over
85% thru 200 & grind same
length time see fines in
Comparatively —



gas telephone



Cu depositing Telephone



Double Kinetoscope 15 sec
throw one picture on
screen then the other
subjects entirely dif
ferent work for each P

Extra Shutter colored
segment, controlled
by synchronized motor or
Electric Contact to
color films at time

For weights of reproducers,
use powdered Impalpable pour
Lead in it to make solid.

Ni reduced H, dump
green Tamp then Empty Ni
Tamp to get rid flake

good tube that by long running
gave bad dry (18) work after
then bore hole thru center &
force in tube to make contact
with flake.

Think out ways of making new
products in the cement works.
= possibly Telapatite rock & lime
of low MP. fused in kilns to
make a Ca K^P s of powder for
farmers, high phosphorous rock

Mullay = why not burn
farmers lime in Rotating Kiln
at works, our No 3 or 4
Quarry lime is ok, Especially
for, can find a high K or Phos
lime,

I think that instead
of running cumberous Moulds
that it would be equally
& perhaps a great saving
in work = ...

or coined by pressed in
smooth die even with face on
reverse & Represented in
petit. thus especially on big
dreams -

See Swab about grounding
Pressed upon H Slag for
Farmers phosphate

Bully Bee sea articles -
Elect of Elevators and
Elec Leads reversal
31 - See Prem -
Note press & suppose

When get North fatal free at Cape
Clear new Reader -
also all things for new Reader

art some Ni plated tube strip
& plate with gold. then
load - another plate tube
also the flake with gold

Bismuth Nitrate or
K or Na Nitrite form a
double salt only soluble

Battery - find out Car lighting
agent Best & start dept, ditto
Sparking Mining & small mes
Organize a selling Dept.

Warrant not making
$100 out of better
Recorder & Reader

New Reader for
ambulance & Reg

SB - Selling Dept - 2 or 3 men
to visit Electric Light Stations
make Manager agent for
Lawrence's Battery - also men
to sell at Hunt to Rumford Vacuum
Bradney Payne & Lincoln
Boston friends, interest
Kimball, find out Coal
Phila Storage Ware, also
Advertising Company,
Take up with Mallory &
Meyer Exhibiting Model
House in Commr. Mr. Anderson Sept
May 18.

Acoustics

Rods vibration directly as to
thickness & inversely as the square
of their length
Stretched cords with constant tension
Number per sec inversely as length
Number per sec directly as square root
of tension
Number per sec square root of the density

acoustics

High pitch waves propagated in liquids
less easily than low pitch,

1" is 4 times quicker than $1\frac{1}{2}$
Cutting out colors quickens it, also
as against 1 5/8 the weight 1/2 this
again quickens it,

Goldstein - prepare Moth with
5 10 15 20 & 30% CO_2.
idea - that Mn + Co both go
to conducting peroxides but
NiOH. will reduce + CO_2
acts as a Conductor
Dills make enough of the
above to permit using
H_2O only in vacuum
proportions with it,

XYZ fluorescent Crystal microscope between Sulphide in microscope only to 1000 Gauss, if energy passes it glass or fluorescence, window Received Etc

Abroqast equals some $CoSO_4$ & reduce in H, & make some Iron Co going over wanted help Tubes unless burning it, wont see Vallenga Etc.

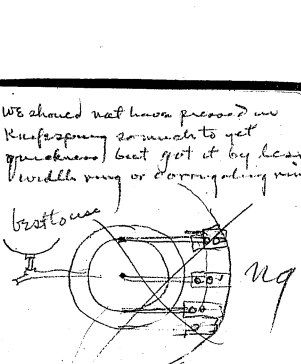
Carbonate Strontia precipitate dried & moistened with water containing slight amount of $SrOH$, moulded lightly in press & dried by Carbonate the $SrOH$, also $LiOH$. Use for recording to get rid of friction & wear, graphite or gold plates about reproduce: Turn off on Record phone, don't use tra...

Write L Otl if he has
made the Tungsten Bronzes
both Sodium & Potassium
also if there is a Lithium
Tungsten bronze that
I want 2 or 3 oz of
Each in the form that
Conduct Elec for experiments
for battery —

Chatley & Chas is due to
work of Knife forming
Node

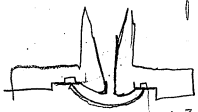
diminish width of ring as
far as possible giving deflection
or paper to diminish it or
a single connection on the angle
but will help +

We showed not known pressure on
Knife forming so much to get
quickness but got it by heavy
middle ring or forming along ring



prevent tilting
1" Dia disk should be
about 1/8 wide — disk 3/4 —

Apl 13 1910



About carrying balloon during winter – all orders must be 3 months trials as long as can hold them —

~~Saponify Shellac~~ —
~~See if the pressure is~~
~~dissolved by KOH.~~

When get Orange look up files on Bismuth

See Dyer Bee & Henderson about putting 2 good men going round to Electric Light
Stations getting managed
handle balloon & Henderson
see abt Comm. Trials.
What Prof. Elec & Hanover
Schemes is —

Archer Make up 12 cells –
groups 2 with 854 containing
8 12 + 15% Bi metal –
Edison make it, run each
group different on start, try
1 Reverse. Zone 1 & 2 dip 14
same with oxide wipes on —

Ask Mallory about Cayenne.
Reports since keyboard stopped

Take up Scheme Ultal
3 Express Cos put in 250 now
in Lansdon —

See Vandenberg about
Lansdon + Branch cars
car lighting - etc -

See results of powered
Cement Cubes when
return —

Make book of big Curves sheets
all Cos so can keep right up —

Show Dodge Citrous on
tubes with 1/8 mole K_2CO_3 Each
end —

Suggest Dodge has man could
spot nature of bad flake by
making to tubes of fresh bath
before making general mix of
flake + then spot on the Cause
bad flake

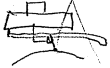
Find out of Copper Regulator
Japan working where now
tube making Machine —

See Sims + have Holland
see if in discharging an A4
a small pocket filled with B.O
being in Cell will be
reduced at any stage of
electrolysis which connected to
Ni + if the reduced BO is
conductor — important to
know this —

Have 4½ × 7½ pillows taking
Machine boat over to
Lub to test with — also
finish grand Amberola Machine

Take up personally the Patel
process & work it out -

Make new Reproducer for
Big Machine



Some 1st class man with
Money to go to foreign
Countries for Bench Cos
& selling & same time
Bayley & Anderson Vehicle
Cos Lichtenstein & Burroughs
agt

Clearly line is the agent that
introduces C into Ni in
plating - Try

group 5% CO_2 5 BiO
10 " " 5 BiO
15 " " 5 "
5 " " 5 "
5 10 "
10 " 10 "

Put 5 10 15 & 20 %
Bi in the fuse & use
clean Fe w/ chromic acid
Hg - Bi will act as
Conductor till all
Fe used - Lower
Clay Valleys

Reduce Fe + Ni together
self heat use 75 Fe
25 Ni -

Chg Fe let it solidfied
change again chg it
3 times put up
with 4 tubes
Chg Fe with sealed
bag —

Maker ~~[illegible]~~ open &
press 5 gram Cake Fe
in see of Com. Chg &
does it without
desubrigation or if
it holds ~~[illegible]~~

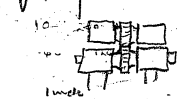
See of Silicate & Phosphide
of Ca Ba Sr Mg Fe
Zn can be fused &
are stable in KOH
to take place of
Rubber parts

See of Iron & Steel stuff
stable in KOH.

Dally
Try Expert Lab small Combustion
tube Element dust Cleaning them
in Sheet iron chamber see of
Electrifying wire also to
also covers electrified hung
down

In place sheet iron deflection
in furnace use [illegible] wire —
find out what Geogrow
of Tantalise Wire or
Cobalt Sheet used or
Nickel Bismuth
~~[illegible]~~

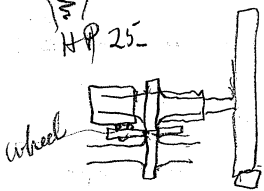
Briquetting Chalk



to 5 ans prime
better be 36"
wheel or
24"

Compression

HP 25



Suggest Mason throwing a Cement 50 lb bag of into Kiln 3 or 4 times or oftener clear out adherence chalk and prevent throwing Chalk into draft

2 tubes with 1164 - 15 Bins OX
48 dump - with 7 Rings
2 tubes 8 Rings 2 9 Rings
2 10 Rings -
Drop above with Rings heavy plated or thicker stock

Drills 1164 scaled on Bins and to get 15% on 48 dump
or 7 8 9 + 10 Rings
drills 24 to dump

ask Dodge what the special Marabum for loading is doing —

Give Archer Scrap book & paste ~~and~~ my orders on —

See Jack Morgan of Merchants Vacuum Co make drawing both ends with Electric trap —

Another point was used to squeeze out out of Chalk by screw now was done 30# air expanded & liquid draft —

Cove make { } Jacquillo Chalk — wooden drum 6 ft dia 10 ft long feed down tube & atsdebar fitted to it

One of 1st things to do make Knife Edge ~~Pressure~~ Calculator Reg Diaphr —

Ask Vaid if he is open for reports on Bleyle & E

Meadocroft find engraved leaflet signed by deche E too true —

E

Durand & Bent Heavy
3 types Mixed —
So there be no wear
Cutting. 70 85 & 100

Design Dynamo & motors for
axle chg Battery wheel not
running try get trical
O.S.&W. — get all data
Axle & Cost to calculate

P.V.W. O.Z. Grand
P.M. & all best,
very get Lans den w

See Johnson get 3 or 4 mills
Credit 50%, on 1½ also
Ask at Co.

BIG SCHEME

Use dusters at Kilns to make
very low pressure steam & then use in
turbine —

If Churchill doesn't answer change
or Chandler, can blow it so
it will drop all the dust

Baby Rec Days — Flagler Lamoder
Coal mine Loco not now
for trolley — Dock trucks
Bid wire get Subway lighting
order — Talk about sparking
battery —

Dyer rebuilt & refinishing selling
Bl. get, Pattern

Petit & Alley in Montana
Record & new t —

glass of aluminum
Dynamo for dynamo
[illegible]

See if [illegible] can make
those [illegible] Cells e/o
for Archer —

Change our desk so it
can go into [illegible]
See dealers [illegible]
on [illegible] propeller

How about E D Adams
for more capital,

Dyn wound [illegible] m's
[illegible] 3 [illegible]! Have
we saved desk room in my
o/o —

Get 2 low E 18 take agent
for [illegible] B1 to gold plate
& assemble again see of
Can regenerate —

Get Atkins 2 Lists of Jewr
list,

Write Mason to send me
total shipments & sales
month in 1897 & 98
10 to date,

Archer fit in film tube, make
Reg tube & hold 2 tubes
Run Reg —

Ask B see why not remove
Motor & 1/2 the Voltages
of Rumbo or make Voltage and
[illegible] of [illegible] cells
to get into Rumbo's oscillator

Get [illegible]
Coils [illegible]

Dodge-Reviews from dont
rent yet Eno — [illegible]
also Stockton [illegible]
Dalby to work on Co Regulations

Want list Elec trucks addresses
N.Y. Pa, Ohio, Mass, Conn

Drummond for
1. Electric Boat by
1 Car lighting
3 Garage
1 to get new Truck, change over
1 Sprinkling.

In guarantee my Leaky Electric trucks, not discharging habitually below Volt. Guarantee that the battery shall be capable of giving rated Capacity over a period of 3 years with a small increase in the input to allow for effect of impurities in the, distilled water & Electrolyte

~~or due~~ Mechanical defects within 1 year free change of Lamp, Car but be safe due to Electrolytic action from dirt allowed to enter around the battery + accumulate, recommend well sealing to allow any impurities to be [illegible] time over change, every [illegible] [illegible] Hedger - buy Lansden trucks + new battery.

See Bachman about Section of Model of Show & Brady Model Elec or Exhibit of Fast Converter to be shown

Try KOH on Iron formulas also Chromium doped with MgO -

Holstein Weaks 50% CoOH/2
Weaks 2 hours 95% NiOH 5 CoOH
do 90 NiOH 10 CoOH — do 85% NiOH/
15% CoOH, CoOH through 100 or 180
mixed with NiOH,

ditto 95 NiOH, 5 CoOH,
then to this mix add 5% BiO
Anhy –
ditto 90 NiOH 10 CoOH +
5 BiOH.

ditto 85 NiOH 15 $CoOH_2$
+5 BiO
ditto 95 $NiOH_2$ 5 $CoOH_2$ +
10% BiO –
ditto 95 NiOH 5% $CoOH_2$ +
15% BiO +

2 tubes, 854 – 10% BiO 2% HgO.
" " 10% BiO 3% HgO
15% BiO 3% HgO
5% BiO 3% HgO
all mixed. see if can get right kind HgO to get
to get rid powder

2 tubes 90 Ni OH2 10 CoOH2
Mixed – then 10% BiO + 3% HgO –

2 Irons 5 grms. containing 10%
powdered Kettelmeyer. Very fine –
see Goldsbeen if he can make it
fine – run chg curves

Yesterday see if can plate Copper
out of Monell metal free of Ni
so we get Ni powder + close Cu

Have Monel Can make up for A 41
+ assembled for trial by Hollaand

look up or get add in 2 or 3 Lechmanl
papers for Hypochlorite process
look up Big Bucky of UCO for makers

take grove gone off bad (New) Irons
charged + connect 10 amp to tubes

2 in group - 854 10% B_2OH Hung 100
on 190° - 21K ½ Li Dip 15 NaOH ½ LiOH
Dip 15 NaOH 1 Li OH
Dip 21K 1 Li " 15 NaOH 2 LiOH
Dip 21K 2 Li " 15 NaOH 3 LiOH
Dip 25K ½ Li
Dip 25K 1 Li Dip 18 NaOH ½ Li
Dip 25K 2 Li " 18 " 1 Li
Dip 30% No Li " 18 " 2 Li
Dip 30 ¼ Li " 18 " 3 Li
15 Dip 30 ½ Li Dip 10K 8 Na ½ Li
Dip 30 1 Li " 10K 8 Na 1 Li
Dip 15K 7 R_2CO_3 1 Li 10K 8 Na 2 Li
15K 7 " 2 Li 10K 8 Na 3 Li
15K 7 " 3 Li

Pressure & try Vanadium on Fe
prevent rust & Decay Fact -
Flash after Can plated Can dot on
Can with Compound of Vanadium
stop further corrosion

Ask Gwa two dip Can in the
stuff he Resin up can dust over
Hexamethylenetetramine & harden it
for Baking Can

2 group 854 70% B_2OH - 2% Sb_2O antiny
" " 5 "
" " 10 "

Fe mixed with 3% B_2OH hydrate dry
" " 5 "
2 Ench 10 "

RCh ignite $FeSO_4$ + B_2SO_4 - &
reduce sediment but was no
recovery and it up 5% but 10% but
15% but

Pet foncaulus & cornell glass
until use know what was
want - see if Xylol & acetone scrap
coff rubber - or any of the solvent

Write out a description pound homes
& scheme for cheap leaflet -

Try Vulcanizing Scrap Rubber
To Hard Rubber.

Dec of B. Electric Light
Gen plan of development to
Zero to reduce the wound
Run billes - Amount to fund
out of notes - bills overdue
100 no good for B. & Co
Welsh it accumulated but
must be discharged to Zero

Get that article from
the Mexican & left in
Florida

find the length of lot
Vanderbeem bought for $ 60
to try on Mr Indge
try Vanderbeem and 2 gross
in Zero chrysts -

Raised Gold filled 5

Car lighting
Straight Storage Lighting 32 Cells 60 V
300 amp Lost $ 650 To 600 -

Apple 16 Cells 32 V 300 amp $ 325 for
battery $ 400 To 750 for Apple rig -
300 amp Lost 47 75 Card Cos cells J
at 17 To $ 21 pay $ 13 per cell

Pullman 32 V 35 amp. 8 hours
Coaches 10 DLW To 25 amp RI RR

300 amp cells weigh 171 lbs in Tray

Cement.	made	orders
Shipped		mch 30 13301,
Feby 67003	none –	april 1 32222 53
Mch 150 226	march 96 502	

Chicago St RR

Track 50 000 per mile –	177 miles
Cars $6000 each	650
Trolleywire $4.100 per mile	143 miles
Feeders 5 808	248 "
Conduit $1.320 mile	620 miles
auxiliary Cable 2.640 mile	100 "
Poles $1.100	210 "

Cars use ESB &
Cars Costing 11.000 Each

150 miles 185 a
97
150 / 277 amps - (1.846
150
1270
1200
700
600
100

250 230
20.0 115
34.5

1.846 amp carriage mile.

37 miles

1846 / 34500 (187. more on A6B1
1846.0
16048
14776.0
12922
1.3

230
23
253.240

	Red Bills	Bank Bal
Landsea - orders		
February none		
March 30.045,	15664	6414.

March Cement A 62% B 38%

Anderson Brougham Wt with 40
A6 - 2400 lbs without bat cost 1585
#2250. paid for Vehicle without battery
A8 - 47/8 x 5 1/4 2700 cc limited (A)

Material + labor 100 A4 cells
production 1400 cells week

	material	labor	Mfrs	Cost of material + labor
Metal parts in rough	40.95	194 52		235 44
Rubber parts	77.79	8.08		85 87
Flake labor 50¢ c lb. 50 lbs 1.19	59.50	25 13		84 66
Nickel hydroxide 55¢ lb	159.58	– 70		160 28
Iron Mix	89 31			89 31
Nickel Plating	11.53	11 83		13 36
Trays labor 18			1 09	
Sundry labor 9 56				
300 No 5 1" wood screw			09	
Water			15	
Dry lithium 13-1/3 Kilo at 96¢			1275	
140 Litre 21 KOH + 50 grms LiOH at 08			1120	36 28
100 256 ¼ mac screw				06
	465.00	250 00		715 00
				264
				979
2800 WEEKLY	450	220		670
				220
				890

Mch 11 CP 184 Kilo 1770 chlk 858 7meg-000

Details of General expenses per cell on production 1400 cells week 55 hours

	Labor	Material
Rent		10
Electric Current		39
Water gas, steam		11
Foreman	20	
Watchmen, sweepers, Elevator men + general purpose gang	15	
Inspection	33	
Packing supplies (oil cans) Lacquer, Stiling screws Drills Emery wheel, goggles + lab Chemicals		19
Repairs + replacements to plant + equipment	45	
Repairs, replacements Material Machine tool steel, cooling belting pipe fitting + Electrical supplies		08
Executive + Engrg office + sales dept salaries	48	
Executive + Eng office + sales dept Supplies + Expenses		16
	1.61	1.03
Total 2.64		
2800 WEEKLY	117	103
Total 220.		

Mr Chlorimate) (cl 8c)	Jolnof	194 Jolnof
"	Xylof.	310 "
Cost Naphthalene Cl8fd		130 LG
Solvent Naphtha		21
Jolnof		12
Xylof		38

Cld at 8c including Cost Jolnof

Bad Fe can be treat Lead best by long low chrate. Reg A4 pocket which can 250 trans in tubs cells square 580 to 1160 gavs suffice 30 hours at 200 ma 1200 1775-1900.

Schmidt Tubs mill #2900 8048 8000 to 16000 lbs hours 95% than 100 mesh K thinks of 85% thru 200 vs (F8) can put thru 50 to 100% illegal Kiefer says 75 HP 16 618 66% thru from 20 mesh 75%

Jany 1 1911 Nassau Cement agreement Expires

	Trucks	upkeep	Bucket lifts	
Adams Ex	1.55	28.30	2.17	651
Atlas Venture	13	32.25	3.14	1020
Tiffany & Co	21	47.92	3.71	1113
Hern & Co	14	29.52	2.21	668
Macy & Co	15	36.01	2.13	639

Al.	27.3		Hg	199.8 *
Sb	122.0		Mo	95.6
Ar	74.9		Ni	58.6 *
Ba	136.8		Niobium	94.0
Beryllium	9.0		N-	14.01
Bi *	210.0		Os	198.6
Bo	11.0		O	15.96
Br	79.75		Palladium	106.2
Cd *	111.6		Phos	30.96
Caesium	133.0		Pt	196.7
Ca	39.9		K	39.04
C	11.97		Rhodium	104.1
Cl	35.37		Rubidium	103.5
Ce *	141.2		Se	78.0
Cr	52.4		Ag	107.66 *
Co	58.6		Si	28.0
Cu	63.0		Na	22.94
Di	147.0		Sr	87.2
Erbium	169.0		Tantalum	182.0
Fl	19.1		S	31.98
Gadolinium	—		Te	128.0
Gold	196.2		Thallium	203.6
H	1.0		Thorium	231.6
Indium	113.4		Tin	117.8
I	126.53		Titanium	48.0
Iridium	196.7		Wo	184.0
Fe *	55.9		Ur	240.0
Lanthanum	139.0		Va	51.2
Lead	206.4		Yttrium	93.0
Lithium	7.01		Zn	64.9
Mg *	23.94		Zr	90.0
Mn	54.8			

Records 10 000

	2 mm	4 mm
Wax 12c	174.00	174.00
Cardboard (Labelled)	99 25	132 55
Sundries	12 00	12 00
Total	181 09	181 09
Labor	165 50	165 50
	6.3c	6.45c
Freight	45 00	45 00
Pkg & boxing	51 00	51 00
Advertising	122 75	122 75
Agent &c	152 00	152 00
	1002 89	1015 89
	3.7 cents	10 1/100
	Equal 10.1/100	19 cents
Net selling price	15 2/10	3.62c

Piecework per 100 —

	2	4
Put on Caps	04 To 05	07 To 12 1/2
" Moulds on	04 To 05	07 To 12 1/2
Take off Trim (2 pcs)	04 To 05	07 To 12 1/2
Pull off Caps	04 To 05	07 To 12 1/2
Fold over	"	"
Remove	"	"
Put screw on Caps	"	"
Take off core	"	"
1st Inspection	03	03
assort	02 3/10	0 13/14
Edge	02 2/10	02 3/10
Refill	"	02 3/10
Polish & package	04	04 1/2
Box	02	02 1/2
Label	02 2/3	02 2/3
	64 8/10 To 88	75 To 119

8 Battery 825 week $3600 equal 8c
Labor 292 per cell —

Ball + Socket Together sequence 11 To 14 HP per bbl
Feller mill. 7 HP per bbl, Repairs mill only 1.6
Cecite bbl — Greffin mill 2.8 To 3.5 repairs

Victor Speaker weight 5 1/2 oz swing form 1 oz
Total 6 1/2 oz —
Pathe Concert 7.7/8 oz small box 5 oz
-dia Ball 40/100

24% of our Records are for Foreign Countries —

16% of Phonographs —

26% of the Films —

R H Beach 110 5th ave

To Reduce long tubes to short
multiply by 28 & subtract —

1750 × 28 = 13000 + 35000 = 48000

1750 − 1500 = 250 — short tube should run

According to Bailey's Recin
160 miles 40 lb +
712 watts Ton mile
See Bee get data

Oct 1 1909 EPCCo

Notes Banks	270 000
Notes Brucker RRT	146 000
Abstract	3 264
EC Miller	936
J H Thompson	1 849
TAZ 3%	661 270
" 4% 6 mo	268 710
Merchdise Notes	104 427
Total Notes	1 456 237

Accts payable

Pay roll	26 472
D&W for	61 067
Merchdise accts	84 288
Paint & plumb acct	16 704
	188 531 → 1.644 769

Things to be improved at EPC when its financial Repairs
Costs down — RR cars, rails, steel —
Carbons on Rolls —
dropping pulleys on Conveyors
Clean fuel coaler
Wear limits on 12 → 126
Screws Conv Quadrons
Limits on evaporating Conv
Repairs by Chasm

		wt Cf	
Cubic ft for plumb	1.25 cf	80	lb
" sand	.50	96	
" cement	.25	92	
Clay 3½ lbs			
water 3 gals 1 quart			
12.6% of tubes is scales			

See Reinter

Cement Probable Saving
mo
25 profit on Limestone 800 Tons — 3 } 4.96
42 Saving on over Lumber, Washer + 1 Saw
5 Saw belt wear account Overtaking Conveyor
5 Saw Chaffe in dumbers
5 New Packing House
25 Kiln Coal
5 Dust saved by Chopping Mills
1 Saving on lime 1 to 2 Lumber dryer
4 Less Repairs Mill cars etc
1 Bins in 3 Stock + Sloping Hummocks
2 Shovel in 1 to 2 Quarry

19.0

increase from 180 M To. 240 M monthly
utilizing Heat from Kilns

Selling Expense Monthly	11000	without Ex
Administration	4000	
General Exp + Commission	2000	13.0
Interest notes Dr	3000	
" Edison notes	4400	
	24400	
$6131 on 1500000 Lbs		
	without Ex	

Cost Aug Dec. 1171.

	A	B	Total
Mr Dealers March	690	299	989
March 31	760	349	1109
Apl 15	802	371	1173
Cost	A 6		
A4 1170	10.42		
Dodge Lumber	can go 12		
A4 1027	A6 1469		

Length short Liters 23 8/16 46 1/16
" long 65 1/16
4 1.5/ inches — length.

Plate	1	2	3	4	5	6	7	8	9	10
Amperes	84	112	140	168	196	224	252	280		
Weight	22	28½	35¼	41	46½	52½	60½	67½		
Discharge	21	28	35	42	49	56	63	70		
Amp Hours	417	556	693	835	972	1112	1250	1390		
33% off	278	371	462	557	648	741	833	927		
8	263	350	436	525	611	699	786	874		
	154	205	255	307	358	409	460	512		
Cost	7.47	9.95	12.38	14.91	17.38	19.86	22.33	24.86		

Bins P.P.C. Stamped sent Thursday
Jan 240 M — Feb 1 Mont 3570 M
Monthum 20 M —
Jany 1 1909 To June 1 1909 Bins Recy 10 1/2 M
Month 229 1234 M — September 153 M — October
Stamped

Velour Records 8"	Lockers	Dealers	Total
	17	21	38
" 10"	30	40	60
	50	66	100
12"	45	66	100
10" Turnip Oil-Soft Felt	67	90	150
12 " "	78	90	150
10 Red Seal Velours	112	150	200
10 American Red Seal	45	60	100
12 " "	67	90	150
10 Violet Red Seal American	90	120	200
12 " "	135	180	300
10 " Jumpy	300	300	500

Old pockets Bismuth

per gram	grain
1%	195
3%	258
6%	289
9%	309
15	332
30	251

Big Rocks
4½ × 7½
14.13 in circumf
Velocity 37.58
8.75 mm on 7" surface.
Wt

Victor 12"
2.75 length record
Speed 1/8 Roof 3/32
Brick Roof 3 1/16 min
Speed 22.18
Bullet 460 in minors
average Mean surface
Vel 34.4" Cord without bullet 300 grains
Cost 6 cents per clock

Height 47 inch 18"
width 6" Rock Crany
27" long wt Rocks 1
116 lbs (1/5 mach) by
Mrs

26 gram lead 1% if brass for 5.2 gram flake
7.81 grams metal 1% = 15%
lost 7% — had 9.4 = 18%
18 grams grees 8.05 Illegal 7.8 grams 19.85
Cracked - latter bullet Breaks on 6 grams 28%

SB Cells 2% Lead Sheets
Single Lickes 2 Mes

wt 1 as cash 33 Empty loaded 3800

9 lbs flake from 15 lbs punching 333 gal Cu Hg 50 g. 1 grams co
good for 100 lbs of Ni flake pot.

Nickers McCormick 856 869 961 9 971 1088 1154

Cost 62 lbs flake
24 pounds Ti get 90% of oxide so for only 70 — 24.80.
Cl Sol — 41 lb of 4½ c — 186
Na Sol 4.83 gal 11 Cents Lbs — 201
Refining bath pour — 20
100 gal distilled H_2O — 100
142 lbs H_2SO_4 — 125
City Water — 350
Power 2½c KWH — 482 KWH — 12.06
4 men 23 hours — 1840
Cu Cu oxide 36 lbs 16c — 6.61
Labor cutting 1 lb 6¼ cents
Separating 1 get 15c for Cu O + only lose 10% NH
2½% cost per lb Ni f pot. 135c lb now 165.

Average Grade Neg filmes 140 feet cost per foot including
everything 565 to 600 per 100 ft
Average selling price 8.55 2.7 profit

July 1 = EPC 21731 prof 91470 Com 759 Gonder 884 no Ind.
Cincinnati 252000 — 228 m dues from Cincinnati 260 m 66 Cincinnati
161 m Division motors 43 m Quincy 4 210 m Ind 123 m Mahing
220 m Zeiler no 18 makes —

900 / 14 = 62
620
8
2
1208
4

25
322
3 | 37
12

7800
234000

100

2400
984
3384
120
6768
3384
406.08

24
41
24
984

27 | 1500
1620
120

136 / 14 = 9.6

12 | 9.84

12.2 / 8

12 | 600 / 5 = 120

911.37

82 | 446
600
41
3
2
1
117
4800
1854375
825

33

2592½

2,160 445

267

450 (21 182 90 1157

26 17

44 890 8099

267 1157

1157

1950

1950

2200

450 3178 1150

1624

2,800

1,400,000

3178

2,800

65 65 65

42 62

23 130

82 5 57 390

890 50 350

225 285 40 25

22

160

350 50

475 32 45 75c 18c

2500 18 885

2975 640

75 14c

9 24 59 57

65 50

45 5 37

325 28

14 370 50

56 65 25

22

416 55 50

50 25

275 50

1100 56 50

500 65

140 275

300

32